REMARKS

I. Summary of the Application

Claims 2-24 and 26-31 remain in this application. The remaining claims have not been allowed, and stand rejected on the following fifteen counts.

(a) Claims 2, 3, 21-23, 29, and 30 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kimura (U.S. Patent No. 4,886,955);

(b) Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Miller (U.S. Patent No. 6,100,518);

(c) Claims 5-7, 11, and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Herrick et al. (International Publication WO 00/11914);

(d) Claims 7-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Funk (U.S. Publication No. 2001/0048958);

(e) Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Herrick et al. as applied to claims 5-7, 11, 16, and 28, and further in view of Greenwald et al. (U.S. Publication No. 2004/0163546);

(f) Claim 13 also stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Funk as applied to claims 7-12, and further in view of Greenwald et al.;

(g) Claims 14, 15, and 17-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Funk as applied to claims 7-12, and further in view of Liverani et al. (U.S. Publication No. 2004/0163546).

(h) Claims 22-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Jarocki et al. (U.S. Patent No. 6,312,589).

(i) Claims 2-4, 11, 13, 20-23, 29, and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld (U.S. Patent No. 3,869,968) in view of Hirabayashi et al. (U.S. Patent No. 4,937,600).

(j) Claims 5-7, 11, and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27, and 29-31, and further in view of Herrick et al.;

(k) Claims 7-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27, and 29-31, and further in view of Funk;

(l) Claims 14, 15, and 17-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27, and 29-31, and further in view of Herrick et al.;

(m) Claims 22-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27 and 29-31, and further in view of Jarocki et al.;

(n) Claims 26, 27, and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. and Potega (U.S. Publication No. 2003/0085621); and

(o) Claim 28 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. and Potega as applied to claims 26, 27, and 31, and further in view of Herrick et al.

Applicants greatly appreciate the thoroughness of the Examiner's remarks in the outstanding Office Action, but respectfully traverse each and every one of the fifteen counts for the following reasons.

II. The Rejections

A. Claims 2, 3, 21-23, 29, and 30 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kimura (U.S. Patent No. 4,886,955). In support of this rejection, the Examiner contends at the beginning of paragraph 6 in the Office Action that:

> Kimura discloses a beverage apparatus (see Figure 1) that is operable over a range of AC voltages, the beverage apparatus including: a power supply (capacitor 39) having an input that couples to an AC voltage source (AC source 35), the power supply (capacitor 39) having a DC voltage output of substantially a predetermined value regardless of the AC voltage within the range of AC voltages (column 4, lines 24-29, 35-44); a heating element (heater 3) directly coupled to the AC voltage source (AC source 35) in parallel with the power supply (capacitor 39) (see Figure 2); and a controller (switching mechanisms 32, 34/ sensor, etc.) coupled to the DC

> voltage (capacitor 39) output to receive power from the power supply (capacitor 39) (see Figure 2), the controller being configured to control the operation of the heating element (column 3, line 65 - column 5, line 60).

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

First, Kimura does not disclose "... a beverage apparatus (see Figure 1) that is operable over a range of AC voltages ...," much less one which is "... operable by a supply voltage that is either a domestic AC voltage or a foreign AC voltage ..." as recited in independent claim 29. In paragraph 6 in the Office Action, the Examiner continues by countering that:

> With respect to claim 29, Kimura discloses providing a container (flask 5) for retaining a liquid to be heated (see Figure 1); providing a heating element (heater 3); coupling the heating element directly to the supply voltage regardless of whether the supply voltage is the domestic AC voltage or the foreign AC voltage (see Figure 2); providing a power supply (capacitor 39) capable of receiving a variety of input voltages; coupling an input of the power supply directly to the supply voltage regardless of whether the supply voltage is the domestic AC voltage or the foreign AC voltage (see Figure 2); providing a DC output from the power supply (capacitor 29) (column 4, lines 35-43); providing a controller (switching mechanisms 32, 34/ sensor, etc); coupling the controller (switching mechanisms 32, 34/ sensor, etc) to the DC output from the power supply (capacitor (39)(see Figure 2); operating user inputs to signal the controller coupled to the DC voltage output to control the operation of the heating element to heat liquid contained in a container (main power switch 26).
>
> With respect to the limitations of the apparatus being operable by a supply voltage that is either a domestic AC voltage or a foreign AC voltage is being deemed intended use, it has been held that a recitation with respect to the manner in which a claim apparatus/process is intended to be employed does not differentiate the claimed apparatus/process from a prior art apparatus/process satisfying the claimed limitations. Kimura discloses an apparatus that is operated via an AC source (35). The examiner respectfully notes that the AC source may be either a domestic source (being a US patent) or a foreign source (inventor being Japanese).
>
> Kimura explicitly discloses an AC voltage source (35) being connected in parallel to capacitor (39). Kimura further discloses that the controller (relays 32, 33) is driven by DC supply (column 4, lines 35-43). Even though the heater (3) is being driven by the AC source, the relays (32, 33) are driven by a DC supply, or DC power supply, that can only be

> dependent on the capacitor (39) utilized in the designed configuration (see Figure 2). Therefore, the DC supply, or DC power supply is considered a substantially predetermined value since the hardware capacitor (39) is selected based on a desired configuration and the capacitor (39) will output a substantially predetermined value based on the AC voltage input to the capacitor (39) due to the selected capacitor (39).

Kimura is completely silent in regards to the particular voltage or range of voltages provided by AC sources 35 (Figs. 2 and 4) or 51 (Fig. 6). [emphasis added] It is also completely silent in regards to whether the apparatus is "... operable by a supply voltage that is either a domestic AC voltage or a foreign AC voltage ..." as recited in independent claim 29. [emphasis added] While the Examiner has respectfully noted "... that the AC source may be either a domestic source (being a US patent) or a foreign source (inventor being Japanese)," Applicants respectfully disagree. Neither the reference's status as a US patent, nor the citizenship of the named inventor can convey what the patent does not state.

Therefore, since Kimura does not explicitly disclose each and every element of independent claim 29 — especially the elements reciting:

> coupling the heating element directly to the supply voltage regardless of whether the supply voltage is the domestic AC voltage or the foreign AC voltage;
>
> providing a power supply capable of receiving a variety of input voltages;
>
> coupling an input of the power supply directly to the supply voltage regardless of whether the supply voltage is the domestic AC voltage or the foreign AC voltage;

it cannot support a rejection based on anticipation. Nothing in Kimura inherently discloses an apparatus which is "... operable by a supply voltage that is either a domestic AC voltage or a foreign AC voltage ...." For this reason alone, the rejection of claims 2, 3, 21-23, 29, and 30 under 35 U.S.C. § 102(b) as being anticipated by Kimura should be removed. If the Examiner believes otherwise, Applicants respectfully request the Examiner provide a credible basis for such inherency.

The same is true for independent claim 30. That is, Kimura does not disclose

In paragraph 24 of the Office Action, the Examiner contends that:

With respect to applicant's argument that the capacitor (39) is not a fixed DC voltage output of substantially a predetermined value regardless of whether the input is coupled to a domestic AC voltage or a foreign AC voltage, the examiner respectfully disagrees. Kimura explicitly discloses an AC voltage source (35) being connected in parallel to capacitor (39). Kimura further discloses that the controller (relays 32, 33) is driven by DC supply (column 4, lines 35-43). Even though the heater (3) is being driven by the AC source, the relays (32, 33) are driven by a DC supply, or DC power supply, that can only be dependent on the capacitor (39) utilized in the designed configuration (see Figure 2). Therefore, the DC supply, or DC power supply is considered a substantially predetermined value since the hardware capacitor (39) is selected based on a desired configuration and the capacitor (39) will output a substantially predetermined value based on the AC voltage input to the capacitor (39) due to the selected capacitor (39). Furthermore, AC voltages are never constant and inherently fluctuate over a range and Kimura would output a substantially predetermined value that is dependent of and relative to the selection of the capacitor (39) regardless of the AC voltage source and the range thereof, since the capacitor (39) is selected based on output and input characteristics.

Furthermore, if the AC voltage is zero, the DC output will be zero. Similarly, if the AC input voltage is infinite, the DC voltage will be infinite. Clearly, the DC voltage output is a fixed substantially predetermined value dependent on the selection characteristics of the capacitor (39), input and desired output, and will definitely change based on the different input due to the selection characteristics of the capacitor (39). Therefore, the term "fixed DC output" is examined as a -constant DC output value- relative to the input and capacitor selection.

Therefore, Kimura fully meets "a power supply having an input that couples to an AC voltage source, the power supply having a DC voltage output of substantially a predetermined value regardless of the AC voltage within the range of AC voltages" (and variations thereof) given its broadest reasonable interpretation.

Applicant respectfully submits that the Examiner's rationale is misplaced. For example, the Examiner's position that "the power supply (capacitor 39) having a DC voltage output of substantially a predetermined value regardless of the AC voltage within the range of AC voltages" mischaracterizes what is recited in claim 30. Claim 30 requires "a power supply having an input receiving one of a domestic AC voltage source and a foreign AC voltage source, the power supply having a DC voltage output of substantially a predetermined value regardless of whether the input is from the domestic AC voltage

source or the foreign AC voltage source...." Claim 30 does not recite a power supply of any "range of AC voltages." Rather, it requires "a power supply having an input receiving one of a domestic AC voltage source and a foreign AC voltage source" which is specific to the input voltages. Also, claim 30 power supply has "a DC voltage output of substantially a predetermined value" regardless of whether the input is domestic or the foreign. Applicants disclose a DC output of about 24V regardless of whether the input is domestic (e.g., 110V) or foreign (e.g., 220V). Even if Kimura disclosed any domestic or foreign AC source (which it does not), the result would be different outputs, not a DC voltage output of substantially "a" predetermined value as recited in claim 30.

The Examiner's position regarding "a domestic AC voltage source and a foreign AC voltage source" is also misplaced, and improperly disregards it as a statement of intended use. Claim 31 recites a power supply having a DC voltage output of a predetermined value of about 24 volts DC regardless of whether the input is receiving the domestic AC voltage or the foreign AC voltage and this is a structural limitation. Claim 31 is directed to a beverage apparatus including a combination of elements including a controller, a heating element and a power supply having the output stated therein. These limitations, including the recitation of what the power supply is by stating what it does, may not be disregarded.

The functional aspect of the above-noted claim limitation is addressed in Section 2173.05(g) of the Manual of Patent Examining Procedure (MPEP) which provides, in part, that "[a] functional limitation is an attempt to define something by what it does, rather than by what it is...." and "[a] functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used."

Disregarding such language violates "all elements" rule of claim construction. The governing law is stated in *Ethyl Molded Products Co. v. Betts Package Inc.*, 9 USPQ2d 1001, 1030 (DC EKy 1988). It is well settled that there is nothing intrinsically wrong in defining something by what it does rather than by what it is. Product claims may be drafted to include process steps to wholly or partially define the claimed product. To the extent that the process limitations distinguish the products over the prior art, they must be given the same consideration as traditional product characteristics.

As stated in these claims the power supply has the capability that the input couples to a domestic AC voltage or a foreign AC voltage. This capability is in combination with the limitation of the power supply having a fixed DC voltage output of substantially "a" predetermined value regardless of whether the input is coupled to the domestic AC voltage or the foreign AC voltage. This is not intended use, this is a structural and functional capability not taught or suggested by the prior art of record.

Claims 2-3 and 21-23 depend (directly or indirectly) from claim 30 and avoid rejection over Kimura for at least the same reasons as noted above with respect to claim 30. For all of the above reasons Kimura does not anticipate claims 2, 3, 21-23, 29, and 30 and withdrawal of the rejection is, respectfully, requested.

In paragraph 24 of the Office Action, the Examiner contends:

> Furthermore, AC voltages are never constant and inherently fluctuate over a range and Kimura would output a predetermined value dependent of the selection of the capacitor (39) regardless of the AC voltage source and the range thereof, since the capacitor (39) is selected based on output and input characteristics.

Applicants respectfully submit that, while "AC voltages are never constant and inherently fluctuate over a range," a domestic AC voltage source" as recited in the claims would not typically fluctuate more than from about 110V to 120V, and a foreign AC voltage source as recited in the claims would not typically fluctuate more than from about 220V to 240V.

The Examiner continues in paragraph 24 of the Office Action:

> Furthermore, if the AC voltage is zero, the DC output will be zero. Similarly, if the AC input voltage is infinite, the DC voltage will be infinite. Clearly, the DC voltage output is a substantially predetermined value dependent on the selection characteristics of the capacitor (39), input and desired output. Therefore, the term "DC output" is examined as a - constant DC output value- relative to the input and capacitor selection. Therefore, Kimura fully meets "a power supply having an input that couples to an AC voltage source, the power supply having a DC voltage output of substantially a predetermined value regardless of the AC voltage within the range of AC voltages" given its broadest reasonable interpretation.

However, Applicants respectfully submit that that claims do not recite a zero AC voltage source or an infinite AC voltage source. They recite "a domestic AC voltage source" and "a foreign AC voltage source."

In paragraph 24 of the Office Action, the Examiner further contends:

> With respect to the limitations of claim 2, Kimura disclose a switch (relay 32) that provides AC voltage to the heating element (heater 3). In regards to applying a different AC voltage depending on the area in which the apparatus is operated, AC voltage fluctuates regularly independent of location and is different in various locations as well.
>
> Kimura explicitly discloses an AC voltage source (35) providing AC current to the heater (3) regardless of the AC voltage source location or area of operation. Therefore, Kimura fully meets "the controller comprises a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with a different AC voltage" given its broadest reasonable interpretation.
>
> With respect to the limitations of claim 3, Kimura discloses a solid state processor (see Figure 2) that provides a signal to open/close the relays (32, 33).
>
> Therefore, Kimura fully meets "a processor that controls the switch" given its broadest reasonable interpretation.

However, Applicants respectfully submit that that independent claim 29 (from which claims 2 and 3 depend) recites "a domestic AC voltage source" and "a foreign AC voltage source," which is nowhere disclosed in Kimura.

The Examiner continues in paragraph 24 of the Office Action:

> With respect to the limitations of claims 21, 22 and 23, Kimura discloses a power indication lamp (27) that is used for sensing temperatures (sensing temperatures being a notification/alarm of a certain temperature setting) coupled to the DC voltage output of the DC power supply (capacitor 39) (see Figure 2). Therefore, Kimura fully meets "a display to which the DC voltage output of the power supply is coupled", "light to which the DC voltage output of the power supply is coupled.", and "an alarm to which the DC voltage output of the power supply is coupled" given its broadest reasonable interpretation.

However, Applicants respectfully submit that that independent claim 30 (from which claims 21, 22 and 23 depend) recites "a domestic AC voltage source" and "a foreign AC voltage source," which is nowhere disclosed in Kimura.

In paragraph 24 of the Office Action, the Examiner further contends:

> With respect to the limitations of 26, Kimura discloses thermal switches (29, 34) that are coupled to the controller (relay/sensor configuration) that are indicative to the temperature of the liquid in the container.
>
> With respect to the limitations of a control valve, Kimura discloses a control valve (21) comprising a shape memory alloy (2), a spring (23) and a valve body (24) which operates via the temperature of the air (column 3, lines 54-59).

However, Applicants respectfully submit that that independent claim 31 (from which claim 26 depends) recites "a domestic AC voltage source" and "a foreign AC voltage source," which is nowhere disclosed in Kimura.

B. Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Miller (U.S. Patent No. 6,100,518). In support of this rejection, the Examiner contends at the beginning of paragraph 10 of the Office Action that:

> Kimura discloses all of the limitations of the claimed invention, as previously set forth, except for the use of a triac instead of the use of a relay or solid state relay. However, Miller teaches that a triac is an equivalent structure known in the art (column 4, line - column 5, line 2). Therefore, because these three switching elements were art recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a triac for a relay or solid state relay.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner contends that "Kimura discloses all of the limitations of the claimed invention, as previously set forth, except for the use of a triac instead of the use of a relay or solid state relay." As demonstrated by all of the foregoing, Kimura does not disclose all of the limitations of the claimed invention. Moreover, Kimura does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific

> AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claim 4 ultimately depends. Kimura's controller (i.e., relays 32, 33 as contended by the Examiner) is driven by DC supply (see, e.g., column 4, lines 35-43). On the other hand, the cited portion of Miller states:

> For stand-alone operation, an AC switch 26 controls operation of a beverage valve 30 in response to the microprocessor 20. This switch may be a mechanical relay or a solid state device, such as a triac.

Claim 2, from which claim 4 depends, recites:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

It is the above-recited switch which claim 4 recites may comprise a triac. It is not driven by DC supply as the Kimura relays are. Therefore, Applicants respectfully submit that the substitution of a triac as suggested by Miller would not be equivalent to Kimura's relays 32, 33 driven by DC supply. Miller, in contradistinction, discloses the equivalency of a mechanical relay to a triac.

C. Claims 5-7, 11, and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Herrick et al. (International Publication WO 00/11914). In paragraph 11 of the Office Action, the Examiner contends that:

> Kimura discloses all of the limitations of the claimed invention, as previously set forth, except for a solenoid to which the DC voltage output of the power supply is coupled, wherein the solenoid is operable to dispense a beverage; valves (dispensing and refill valves) to which the DC voltage output of the power supply is coupled; and a sensor being a capacitance sensor.
>
> However, utilizing a solenoid and valve to which DC voltage is coupled, is known in the art. Herrick et al., for example, teach a liquid pump (15) being a pump or solenoid and being electrically connected to the power supply and permitting flow of product (page 21, lines 19-20; see Figures 1, 17, 22) and inlet/refill and outlet/dispensing sealants (159, 161) functioning as valves having an electrical and fluid seal controllable via

> electrical connections 163 and 167 (page 23, lines 1-22). Such a DC powered mechanism provides the advantage of providing a non-gravitational control of the fluid flow through a fluid heating system, thereby inherently providing a more accurate means to control a valve.
>
> Herrick et al. further teach that it is known to utilize temperature sensors and conductance sensors together in beverage dispensing apparatus (temperature sensor 19 and a conductance sensor; page 8, line 24 - page 9, line 19; page 18, line 24 – page 19, line 16; see Figures 1, 17, 22) to provide more information about the variables of the fluid to be heated (i.e. flow rate, temperature, conductance), thereby improving the closed control loop regulation of a beverage heating apparatus (page 19, lines 4-21).
>
> It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the gravitation/temperature dependent valve of the Kimura beverage heating apparatus with a solenoid valve and DC control thereof of Herrick et al. in order to provide a non-gravitational control of the fluid flow through a fluid heating system, thereby inherently providing a more accurate means to measure and control a valve. It would have further been obvious to one of ordinary skill in the art at the time of the invention was to modify Kimura with the addition of a conductance sensor in conjunction with the existing temperature sensor of Herrick met al. in order to provide more information about the variables of the fluid to be heated, thereby improving the closed control loop regulation of a beverage heating apparatus.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner again contends that "Kimura discloses all of the limitations of the claimed invention, as previously set forth." As demonstrated by all of the foregoing, Kimura does not disclose all of the limitations of the claimed invention. Moreover, Kimura does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claims 5-7, 11, and 16 ultimately depend. Herrick does not cure this deficiency. Accordingly, for this reason alone, the rejection of claims

5-7, 11, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Herrick et al. should be withdrawn.

D. Claims 7-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Funk (U.S. Publication No. 2001/0048958). In paragraph 12 of the Office Action, the Examiner contends that:

> Kimura discloses all of the limitations of the claimed invention, as previously set forth, except for a concentrate dispenser within the beverage dispenser including a valve that is operable to dispense a beverage concentrate, a pump, having a rotatable shaft, that is operable to move the beverage concentrate and a sensor senor sensing the speed at which the shaft rotates; and a display.
>
> However, a beverage dispenser comprising a concentrate dispenser including a valve that is operable to dispense a beverage concentrate, a pump, having a rotatable shaft, that is operable to move the beverage concentrate and a sensor senor sensing the speed at which the shaft rotates, as described by Funk, is known in the art. Funk teaches a concentrate dispenser (32) within the beverage dispenser (20) including a valve that is operable to dispense a beverage concentrate (gating device 62), a pump, having a rotatable shaft, that is operable to move the beverage concentrate (pump 60 being a peristaltic pump that inherently has a rotating shaft) and a sensor sensing the speed at which the shaft rotates (a variable speed pump 60 being controllable via a controller inherently has a sensor to control and sense the variable speeds; page 3, paragraph 27-28; see Figure 3) to precisely control amount of concentrate injected into the dilution stream of the beverage dispenser, thereby providing better control of the quality of the dispensed beverage. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Kimura with the concentrate dispenser an control thereof of Funk to precisely control amount of concentrate injected into the dilution stream of the beverage dispenser, thereby providing better control of the quality of the dispensed beverage.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner again contends that "Kimura discloses all of the limitations of the claimed invention, as previously set forth." As demonstrated by all of the foregoing, Kimura does not disclose all of the limitations of the claimed invention. Moreover, Kimura does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claims 7-12 ultimately depend. Funk does not cure this deficiency. Accordingly, for this reason alone, the rejection of claims 7-12 under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Funk should be withdrawn.

E. Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Herrick et al. as applied to claims 5-7, 11, 16, and 28 above, and further in view of Greenwald et al. (U.S. Publication No. 2004/0163546). In paragraph 13 of the Office Action, the Examiner contends that:

> The Kimura-Herrick beverage heating apparatus combination discloses all of the limitations, as previously set forth, except for the apparatus further comprising a heated water tank and the heating element being operatively associated with the heating element and the sensor sensing the temperature of the heated water tank.
>
> However, a pre-heated water tank for a beverage dispensing apparatus with a temperature sensor is known in the art. Greenwald et al., for example, teach a beverage heating apparatus comprising holding tanks at various temperatures (see Figures 1-4).
>
> Greenwald et al. further teach specific holding tank (2) that is maintained a temperature "Tt" which is lower than the output temperature of brewing coffee (page 2-3, paragraphs 37-38). Such a mechanism of a pre-heated temperature controlled reservoir tank provides the advantage of requiring less energy and time to perform the beverage heating at the time of serving, thereby inherently increasing the efficiency of the beverage heating apparatus. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the Kimura-Herrick beverage heating apparatus combination with a pre-heated reservoir tank and sensor therein associated with the heating element of Greenwald et al. in order to provide the advantage of requiring less energy and time to perform the beverage heating at the time of serving, thereby inherently increasing the efficiency of the beverage heating apparatus.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner contends that "[t]he Kimura-Herrick beverage heating apparatus combination discloses all of the limitations,, as previously set forth." As demonstrated by all of the foregoing, Kimura does not disclose all of the limitations of the claimed invention. Moreover, Kimura does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claim 13 ultimately depends. Neither Herrick nor Greenwald cure this deficiency. Accordingly, for this reason alone, the rejection of claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Herrick et al. as applied to claims 5-7, 11, 16, and 28 above, and further in view of Greenwald et al. should be withdrawn.

F. Claim 13 also stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Funk as applied to claims 7-12 above, and further in view of Greenwald et al. In paragraph 14 of the Office Action, the Examiner contends that:

> The Kimura-Funk beverage heating apparatus combination discloses all of the limitations, as previously set forth, except for the apparatus further comprising a heated water tank and the heating element being operatively associated with the heating element and the sensor sensing the temperature of the heated water tank.
>
> However, a pre-heated water tank for a beverage dispensing apparatus with a temperature sensor is known in the art. Greenwald et al., for example, teach a beverage heating apparatus comprising holding tanks at various temperatures (see Figures 1-4).
>
> Greenwald et al. further teach specific holding tank (2) that is maintained a temperature "Tt" which is lower than the output temperature of brewing coffee (page 2-3, paragraphs 37-38). Such a mechanism of a pre-heated temperature controlled reservoir tank provides the advantage of requiring less energy and time to perform the beverage heating at the time of

> serving, thereby inherently increasing the efficiency of the beverage heating apparatus. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the Kimura-Funk beverage heating apparatus combination with a pre-heated reservoir tank and sensor therein associated with the heating element of Greenwald et al. in order to provide the advantage of requiring less energy and time to perform the beverage heating at the time of serving, thereby inherently increasing the efficiency of the beverage heating apparatus.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner contends that "[t]he Kimura-Funk beverage heating apparatus combination discloses all of the limitations, as previously set forth." As demonstrated by all of the foregoing, Kimura does not disclose all of the limitations of the claimed invention. Moreover, Kimura does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claim 13 ultimately depends. Neither Funk nor Greenwald cure this deficiency. Accordingly, for this reason alone, the rejection of claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Funk as applied to claims 7-12 above, and further in view of Greenwald should be withdrawn.

G. Claims 14, 15, and 17-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Funk as applied to claims 7-12 above, and further in view of Liverani et al. (U.S. Publication No. 2004/0163546). In paragraph 15 of the Office Action, the Examiner contends that:

> The Kimura-Funk beverage heating apparatus combination discloses all of the limitations, as previously set forth, except for a cooling cabinet and a heat sink and temperature sensors sensing a portion of each component, and both being cooled by a fan coupled to the DC voltage output of the power supply.
>
> However, a beverage dispensing apparatus comprising a cooling cabinet and a heat sink and both being cooled by a fan coupled to the DC voltage output of the power supply, as described by Liverani et al., is known in the

> art. Liverani et al. teach a conventional heat exchanger (5, 34; page 2, paragraphs 31, 35) capable of instantaneously heating water. Liverani et al. further teach that a cooling cabinet (loading compartment 45) for mixing the hot water with the appropriate mixer may be associated with a heat sink (Peltier cell 48) and a cooling fan 50 to cool the heat sink and thereby in return cool the cooling cabinet to prevent the decay of the product, thereby increasing the quality and enjoyment of the dispensed beverage (page 1, paragraphs 7-16; page 2-3, paragraph 36). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the Kimura-Funk beverage heating apparatus combination with the cooling cabinet/heat sink/fan cooling configuration of Liverani et al. to prevent the decay of the product, thereby increasing the quality and enjoyment of the dispensed beverage.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner again contends that "[t]he Kimura-Funk beverage heating apparatus combination discloses all of the limitations, as previously set forth." As demonstrated by all of the foregoing, Kimura does not disclose all of the limitations of the claimed invention. Moreover, Kimura does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claims 14, 15, and 17-20 ultimately depend. Neither Funk nor Liverani cure this deficiency. Accordingly, for this reason alone, the rejection of claims 14, 15, and 17-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Funk as applied to claims 7-12 above, and further in view of Liverani should be withdrawn.

H. Claims 22-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Jarocki et al. (U.S. Patent No. 6,312,589). In paragraph 16 of the Office Action, the Examiner contends that:

> To the degree it can be argued that Kimura does not teach "a display to which the DC voltage output of the power supply is coupled", "light to which the DC voltage output of the power supply is coupled.", and "an alarm to which the DC voltage output of the power supply is coupled", the

> additional reference is applied is applied to Kimura as set forth. In addition, Kimura discloses all of the limitations of the claimed invention, as previously set forth, except for an auxiliary power supply configured to convert the DC voltage output of the power supply to another power supply voltage.
>
> However, a beverage dispensing apparatus having a light to which the DC voltage output of the power supply is coupled; an alarm to which the DC voltage output of the power supply is coupled; and an auxiliary power supply configured to convert the DC voltage output of the power supply to another power supply voltage, as described by Jarocki et al., is known in the art. Jarocki et al. teach a light (three color LED lamp indicators on the front of control box 45; column 8, lines 45-55; column 10, lines 25-44; see Figure 50) and an alarm (column 8, lines 56-63; column 10, lines 44-50; see Figure 5E) configured and controlled by an alarm circuit (180) which is provided power by an auxiliary power supply configured to convert the DC voltage output of the power supply to another power supply voltage (column 9, lines 55-58) to provide warnings for display and/or readout by the user, thereby providing a safer beverage dispensing device. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Kimura with the lamp, alarm and auxiliary power supply combination of Jarocki et al. to provide warnings for display and/or readout by the user, thereby providing a safer beverage dispensing device.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner again contends that "Kimura discloses all of the limitations of the claimed invention, as previously set forth." As demonstrated by all of the foregoing, Kimura does not disclose all of the limitations of the claimed invention. Moreover, Kimura does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claims 22-24 ultimately depend. Jarocki does not cure this deficiency. Accordingly, for this reason alone, the rejection of claims 22-24 under

35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Jarocki should be withdrawn.

I. Claims 2-4, 11, 13, 20-23, 29, and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld (U.S. Patent No. 3,869,968) in view of Hirabayashi et al. (U.S. Patent No. 4,937,600). In paragraph 17 of the Office Action, the Examiner contends that:

> Ihlenfeld discloses a beverage apparatus (coffee maker) that is operable with an of AC voltage (see Figure 7), the beverage apparatus including: an AC voltage source; a heating element (heating element 60; coffee pot heater 50) directly coupled to the AC voltage (see Figure 7); and a controller (on-off switch 102) being configured to control the operation of the heating element (heating element 60; coffee pot heater 50).
>
> With respect to claims 29 and 30, Ihlenfeld discloses providing a container (boiler 42; coffee pot 18) for retaining a liquid to be heated (see Figure 7); providing a heating element (heating element 60; coffee pot heater 50); coupling the heating element directly to the supply voltage regardless of whether the supply voltage is the domestic AC voltage or the foreign AC voltage (see Figure 2); providing a controller (on-off switch 102); coupling the controller (on-off switch 102) supply voltage (see Figure 7); operating user inputs (on-off switching functionality) to signal the controller (on-off switch 102) to control the operation of the heating element to heat liquid contained in a container (see Figure 7).
>
> With respect to the limitations of claim 11, Ihlenfeld discloses a sensor (thermostatic switch 74) to which is couple a signal derived from the voltage of the power supply.
>
> With respect to the limitations of claim 13, Ihlenfeld discloses a heated water tank (boiler housing 42), the heating element (heating element 60) being operatively associated with the heated water tank (boiler housing 42) for heating water retained in the tank, wherein the sensor (thermostatic switch 74) senses a temperature of the heated element being operatively associated with the heated water tank for heating water retained in the tank wherein the sensor senses a temperature of the heated water (column 4, line26 - column 5, line 51; column 6, lines 13-68).
>
> With respect to the limitations of claims 21-23, Ihlenfeld discloses a power indication lamp (114) that is used for indicating energization (light on being a notification; alarm being when light is off when the plug is plugged in and the switch 102 is on) to the voltage output of the power supply. Therefore, Ihlenfeld fully meets "a display to which the power supply is coupled", "light to which the power supply is coupled.", and "an

alarm to which power supply is coupled" given its broadest reasonable interpretation.

Ihlenfeld discloses all of the limitations of the claimed invention, as previously set forth, except for the apparatus being operable over a range of AC voltages; a power supply having an input that couples to an AC voltage source, the power supply having a DC voltage output of substantially a predetermined value regardless of the AC voltage within the range of AC voltages; a heating element directly coupled to the AC voltage source in parallel with the power supply; and a controller coupled to the DC voltage output to receive power from the power supply, the controller being configured to control the operation of the heating element; the controller comprising a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with a different AC voltage; the controller comprising a processor that controls the switch; the switch comprising a triac; a motor to which the DC voltage output of the power supply is coupled; and a temperature sensor that is coupled to the controller and that provides a signal to the controller which is indicative of a temperature.

However, an apparatus being operable over a range of AC; a power supply having an input that couples to an AC voltage source, the power supply having a DC voltage output of substantially a predetermined value regardless of the AC voltage within the range of AC voltages; a heating element directly coupled to the AC voltage source in parallel with the power supply; and a controller coupled to the DC voltage output to receive power from the power supply, the controller being configured to control the operation of the heating element is known in the art. Hirabayashi et al., for example, teach an apparatus being operable over a range of AC voltages (column 3, lines 47-51; column 4, lines 47-51; see Table 1); a power supply (low voltage source 25) having an input that couples to an AC voltage source (commercial power from power source supplied from plug 26; column 14, line 54 - column 17, line 8; see Figure 17), the power supply having a DC voltage output (low voltage source supplying components would have a DC voltage output as required for the control circuit/CPU) of substantially a predetermined value regardless of the AC voltage within the range of AC voltages (column 14, line 54 - column 17, line 8; see Figure 17); a heating element (heating element 5) directly coupled to the AC voltage source (AC) in parallel with the power supply (low voltage source 25) (see combination of Figures 8, 17, 20, 27); and a controller (heater control circuit 4/CPU) coupled to the DC voltage output to receive power from the power supply (low voltage source 25), the controller (heater control circuit 4/CPU) being configured to control the operation of the heating element (column 3, line 6 - column 23, line 5; see

Figures 1-29); a switch (triac 30) that is closeable to apply a specific AC voltage to the heating element if the apparatus is operated in an area with the specific voltage and to apply a different AC voltage to the heating element if the heating apparatus is operated in an area with a different AC voltage (column 3, lines 47-51; column 4, lines 47-51; see Table 1); the controller (heater control circuit 4/CPU) comprising a processor (CPU) that controls the switch (triac 30). In addition, Hirabayashi et al. teach the low voltage source (25) being coupled to both the CPU and the motor drive circuit (34) (see combination of Figures 8, 17, 20, 27). Similarly, Hirabayashi et al. teach a motor (35) being power by the output of the DC voltage of the power supply. Hirabayashi et al. also teach a temperature sensor (7) that is coupled to the controller (heater control circuit 4/CPU) and that provides a signal to the controller (heater control circuit 4/CPU) which is indicative of a temperature. Hirabayashi et al. further teach the advantage of such a configuration provides a means for an apparatus to stably operate with plurality of rated voltage of power sources (column 2, lines 12-15), thereby increasing the versatility of the apparatus. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Ihlenfeld with a power supply having an input that couples to an AC voltage source, the power supply having a DC voltage output of substantially a predetermined value regardless of the AC voltage within the range of AC voltages; a heating element directly coupled to the AC voltage source in parallel with the power supply; and a controller coupled to the DC voltage output to receive power from the power supply, the controller being configured to control the operation of the heating of Hirabayashi et al. in order to provide a means for an apparatus to stably operate with plurality of rated voltage of power sources (column 2, lines 12-15), thereby increasing the versatility of the apparatus. Furthermore, to provide DC output to the lamp instead of direct AC voltage would have been a mere engineering expediency as Hirabayashi et al. clearly teaches the use low voltage power source to power external components other than the heater.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner incredibly contends that "Ihlenfeld discloses all of the limitations of the claimed invention, as previously set forth," and then lists nearly a dozen exceptions. What is clear is that Ihlenfeld does not disclose all of the limitations of the claimed invention. Moreover, Ihlenfeld does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if

> the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claims 11, 13, and 20-23 ultimately depend. Hirabayashi does not cure this deficiency.

For example, the only reference in Ihlenfeld to an AC voltage source is at column 5, lines 53-56, which states:

> The invention is provided with an electrical male plug 92 having a pair of prongs 94 and 96 adapted to be electrically coupled to a conventional 120 volt outlet. Coupled to the prong 94 is a conductor 98 and coupled to the prong 96 is a conductor 100.

Ihlenfeld is completely silent as to either "a domestic AC voltage source" or "a foreign AC voltage source."

Hirabayashi discloses an image forming apparatus which includes a device operable with a first rated voltage and a second rated voltage which is different from the first rated voltage. See abstract. However, Hirabayashi is completely silent in regards to "a power supply having a DC voltage output of substantially a predetermined value regardless of whether the input is from the domestic AC voltage source or the foreign AC voltage source" as recited in claim 30, from which claims 11, 13, and 20-23 ultimately depend. [emphasis added]

Hirabayashi, in fact, makes no mention of DC. Insofar as is pertinent herein, the Examiner contends that Hirabayashi teaches:

> a power supply (low voltage source 25) having an input that couples to an AC voltage source (commercial power from power source supplied from plug 26; column 14, line 54 - column 17, line 8; see Figure 17), the power supply having a DC voltage output (low voltage source supplying components would have a DC voltage output as required for the control circuit/CPU) of substantially a predetermined value regardless of the AC voltage within the range of AC voltages (column 14, line 54 - column 17, line 8; see Figure 17)

However, Hirabayashi discloses at column 15, lines 6-16 that:

> The CPU 21 which is the central part of the control means is connected to a low voltage source 25 which receives power from commercial power source supplied from plug 26 and reduces the voltage, and is connected to a voltage discrimination circuit 24 for discriminating the voltage of the commercial power on the basis of the voltage from the low voltage source

> 25. The low voltage source 25 and the voltage discrimination circuit 25 of this embodiment can be switched by manual switch between 100 V/115 V side or 200 V/220 V/240 V side.

There is no teaching or suggestion within Hirabayashi that low voltage source 25 is a DC power source. In fact, at column 15, lines 35-48, Hirabayashi notes:

> The sequence control by the CPU 21 and the ROMs 22 and 23 in this embodiment will be described. When the commercial power supply provides 100 V, the low voltage source 25 and the voltage discrimination circuit 24 is switched to 100 V/115 V side, and the voltage of 100 V is supplied from an outlet 26. Then, a predetermined low voltage is supplied to the voltage discrimination circuit 24 through the CPU 21, and the circuit 24 discriminates that the supplied voltage is 100 V/115 V, and a signal indicative of this is transmitted to the CPU. The CPU, receiving this signal, selects a sequence from the ROM 22 for the sequential control for 100 V/115 V. Then, the control of the heat generation for the heater 5 of the fixing apparatus is started. [emphasis added]

Accordingly, Applicants respectfully submit that the rejection of claims 2-4, 11, 13, 20-23, 29, and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi should be withdrawn.

J. Claims 5-7, 11, and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27, and 29-31 above, and further in view of Herrick et al. In paragraph 18 of the Office Action, the Examiner contends that:

> Ihlenfeld in view of Hirabayashi et al. discloses all of the limitations of the claimed invention, as previously set forth, except for a solenoid to which the DC voltage output of the power supply is coupled, wherein the solenoid is operable to dispense a beverage; valves (dispensing and refill valves) to which the DC voltage output of the power supply is coupled; and a sensor being a capacitance sensor.
>
> However, utilizing a solenoid and valve to which DC voltage is coupled, is known in the art. Herrick et al., for example, teach a liquid pump (15) being a pump or solenoid and being electrically connected to the power supply and permitting flow of product (page 21, lines 19-20; see Figures 1, 17, 22) and inlet/refill and outlet/dispensing sealants (159, 161) functioning as valves having an electrical and fluid seal controllable via electrical connections 163 and 167 (page 23, lines 1-22). Such a DC powered mechanism provides the advantage of providing a non-

> gravitational control of the fluid flow through a fluid heating system, thereby inherently providing a more accurate means to control a valve.
>
> Herrick et al. further teach that it is known to utilize temperature sensors and conductance sensors together in beverage dispensing apparatus (temperature sensor 19 and a conductance sensor; page 8, line 24 - page 9, line 19; page 18, line 24 - page 19, line 16; see Figures 1, 17, 22) to provide more information about the variables of the fluid to be heated (i.e. flow rate, temperature, conductance), thereby improving the closed control loop regulation of a beverage heating apparatus (page 19, lines 4-21).
>
> It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the gravitation water inlet/thermostatic control of Ihlenfeld in view of Hirabayashi et al. with a solenoid valve and DC control thereof of Herrick et al. in order to provide a non-gravitational control of the fluid flow through a fluid heating system, thereby inherently providing a more accurate means to measure and control fluid flow. It would have further been obvious to one of ordinary skill in the art at the time of the invention was to modify Ihlenfeld in view of Hirabayashi et al. with the addition of a conductance sensor in conjunction with the existing temperature sensor of Herrick met al. in order to provide more information about the variables of the fluid to be heated, thereby improving the closed control loop regulation of a beverage heating apparatus.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner contends that "Ihlenfeld in view of Hirabayashi et al. discloses all of the limitations of the claimed invention, as previously set forth." As demonstrated by all of the foregoing, Ihlenfeld does not disclose all of the limitations of the claimed invention. Moreover, Ihlenfeld does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claims 5-7, 11, and 16 ultimately depend. Neither Hirabayashi nor Herrick cure this deficiency. Accordingly, for this reason alone, the rejection of claims 5-7, 11, and 16 under 35 U.S.C. § 103(a) as being unpatentable over

Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27, and 29-31 above, and further in view of Herrick should be withdrawn.

K. Claims 7-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27, and 29-31 above, and further in view of Funk. In paragraph 19 of the Office Action, the Examiner contends that:

> Ihlenfeld in view of Hirabayashi et al. discloses all of the limitations of the claimed invention, as previously set forth, except a concentrate dispenser within the beverage dispenser including a valve that is operable to dispense a beverage concentrate, a pump, having a rotatable shaft, that is operable to move the beverage concentrate and a sensor senor sensing the speed at which the shaft rotates; and a display.
>
> However, a beverage dispenser comprising a concentrate dispenser including a valve that is operable to dispense a beverage concentrate, a pump, having a rotatable shaft, that is operable to move the beverage concentrate and a sensor senor sensing the speed at which the shaft rotates, as described by Funk, is known in the art. Funk teaches a concentrate dispenser (32) within the beverage dispenser (20) including a valve that is operable to dispense a beverage concentrate (gating device 62), a pump, having a rotatable shaft, that is operable to move the beverage concentrate (pump 60 being a peristaltic pump that inherently has a rotating shaft) and a sensor sensing the speed at which the shaft rotates (a variable speed pump 60 being controllable via a controller inherently has a sensor to control and sense the variable speeds; page 3, paragraph 27-28; see Figure 3) to precisely control amount of concentrate injected into the dilution stream of the beverage dispenser, thereby providing better control of the quality of the dispensed beverage. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Ihlenfeld in view of Hirabayashi et al. with the concentrate dispenser an control thereof of Funk to precisely control amount of concentrate injected into the dilution stream of the beverage dispenser, thereby providing better control of the quality of the dispensed beverage.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner again contends that "Ihlenfeld in view of Hirabayashi et al. discloses all of the limitations of the claimed invention, as previously set forth." As demonstrated by all of the foregoing, Ihlenfeld does not disclose all of the limitations of the claimed invention. Moreover, Ihlenfeld does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claims 7-12 ultimately depend. Neither Hirabayashi nor Funk cure this deficiency. Accordingly, for this reason alone, the rejection of claims 7-12 under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27, and 29-31 above, and further in view of Funk should be withdrawn.

L. Claims 14, 15, and 17-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27, and 29-31 above, and further in view of Herrick et al. In paragraph 20 of the Office Action, the Examiner contends that:

> Ihlenfeld in view of Hirabayashi et al. discloses all of the limitations of the claimed invention, as previously set forth, except for a cooling cabinet and a heat sink and temperature sensors sensing a portion of each component, and both being cooled by a fan coupled to the DC voltage output of the power supply.
>
> However, a beverage dispensing apparatus comprising a cooling cabinet and a heat sink and both being cooled by a fan coupled to the DC voltage output of the power supply, as described by Liverani et al., is known in the art. Liverani et al. teach a conventional heat exchanger (5, 34; page 2, paragraphs 31, 35) capable of instantaneously heating water. Liverani et al. further teach that a cooling cabinet (loading compartment 45) for mixing the hot water with the appropriate mixer may be associated with a heat sink (Peltier cell 48) and a cooling fan 50 to cool the heat sink and thereby in return cool the cooling cabinet to prevent the decay of the product, thereby increasing the quality and enjoyment of the dispensed beverage (page 1, paragraphs 7-16; page 2-3, paragraph 36). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Ihlenfeld in view of Hirabayashi et al. with the cooling cabinet/heat sink/fan cooling configuration of Liverani et al. to prevent the decay of the product, thereby increasing the quality and enjoyment of the dispensed beverage.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner yet again contends that "Ihlenfeld in view of Hirabayashi et al. discloses all of the limitations of the claimed invention, as previously set forth." As demonstrated by all of the foregoing, Ihlenfeld does not disclose all of the limitations of the claimed invention. Moreover, Ihlenfeld does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claims 14, 15, and 17-19 ultimately depend. Neither Hirabayashi nor Herrick cure this deficiency.

Applicants believe that the Examiner inadvertently rejected claims 14, 15, and 17-19 on the basis of a Ihlenfeld/Hirabayashi/Herrick combination when he meant the combination of Ihlenfeld/Hirabayashi/Suggi Liverani. On that assumption, the following comments are directed to the propriety of Suggi Liverani.

Suggi Liverani also does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claims 14, 15, and 17-19 ultimately depend. Since the combination of Ihlenfeld/Hirabayashi/Suggi Liverani does not cure this deficiency, for this reason alone, the rejection of claims 14, 15, and 17-19 under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27, and 29-31 above, and further in view of Herrick et al. should be withdrawn.

M. Claims 22-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27 and 29-31, and further in view of Jarocki et al. In paragraph 21 of the Office Action, the Examiner contends that:

> To the degree it can be argued that Ihlenfeld in view of Hirabayashi et al. does not teach "a display to which the DC voltage output of the power supply is coupled", "light to which the DC voltage output of the power supply is coupled.", and "an alarm to which the DC voltage output of the power supply is coupled", the additional reference is applied is applied to Ihlenfeld in view of Hirabayashi et al. as set forth. In addition, Ihlenfeld in view of Hirabayashi et al. discloses all of the limitations of the claimed invention, as previously set forth, except for an auxiliary power supply configured to convert the DC voltage output of the power supply to another power supply voltage.
>
> However, a beverage dispensing apparatus having a light to which the DC voltage output of the power supply is coupled; an alarm to which the DC voltage output of the power supply is coupled; and an auxiliary power supply configured to convert the DC voltage output of the power supply to another power supply voltage, as described by Jarocki et al., is known in the art. Jarocki et al. teach a light (three color LED lamp indicators on the front of control box 45; column 8, lines 45-55; column 10, lines 25-44; see Figure 50) and an alarm (column 8, lines 56-63; column 10, lines 44-50; see Figure 5E) configured and controlled by an alarm circuit (180) which is provided power by an auxiliary power supply configured to convert the DC voltage output of the power supply to another power supply voltage (column 9, lines 55-58) to provide warnings for display and/or readout by the user, thereby providing a safer beverage dispensing device. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Ihlenfeld in view of Hirabayashi et al. with the lamp, alarm and auxiliary power supply combination of Jarocki et al. to provide warnings for display and/or readout by the user, thereby providing a safer beverage dispensing device.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner again mistakenly relies upon the combination of Ihlenfeld in view of Hirabayashi et al. As demonstrated by all of the foregoing, Ihlenfeld does not disclose all of the limitations of the claimed invention. Moreover, Ihlenfeld does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claims 22-24 ultimately depend. Neither Hirabayashi nor Jarocki cure this deficiency. Accordingly, for this reason alone, the rejection of claims 22-24 under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. as applied to claims 2-4, 20-23, 27 and 29-31, and further in view of Jarocki et al. should be withdrawn.

N. Claims 26, 27, and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. and Potega (U.S. Publication No. 2003/0085621). In paragraph 22 of the Office Action, the Examiner contends that:

> With respect to claim 31, Ihlenfeld discloses providing a container (boiler 42; coffee pot 18) for retaining a liquid to be heated (see Figure 7); providing a heating element (heating element 60; coffee pot heater 50); coupling the heating element directly to the supply voltage regardless of whether the supply voltage is the domestic AC voltage or the foreign AC voltage (see Figure 2); providing a controller (on-off switch 102); coupling the controller (on-off switch 102) supply voltage (see Figure 7); operating user inputs (on-off switching functionality) to signal the controller (on-off switch 102) to control the operation of the heating element to heat liquid contained in a container (see Figure 7).
>
> Ihlenfeld discloses all of the limitations of the claimed invention, as previously set forth, except for the apparatus being operable over a range of AC voltages; a power supply having an input that couples to an AC voltage source, the power supply having a DC voltage output of a predetermined value regardless of the AC voltage within the range of AC voltages; a heating element directly coupled to the AC voltage source in parallel with the power supply; and a controller coupled to the DC voltage output to receive power from the power supply, the controller being configured to control the operation of the heating element; the controller comprising a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with a different AC voltage; the controller comprising a processor that controls the switch; the switch comprising a triac; a motor to which the DC voltage output of the power supply is coupled; and a temperature sensor that is coupled to the controller and that provides a signal to the controller which is indicative of a temperature; and the predetermined value being about 24 volts DC regardless of whether the input is receiving the domestic AC voltage or the foreign AC voltage.
>
> However, an apparatus being operable over a range of AC; a power supply having an input that couples to an AC voltage source, the power supply

having a DC voltage output of a predetermined value regardless of the AC voltage within the range of AC voltages; a heating element directly coupled to the AC voltage source in parallel with the power supply; and a controller coupled to the DC voltage output to receive power from the power supply, the controller being configured to control the operation of the heating element is known in the art. Hirabayashi et al., for example, teach an apparatus being operable over a range of AC voltages (column 3, lines 47-51; column 4, lines 47-51; see Table 1); a power supply (low voltage source 25) having an input that couples to an AC voltage source (commercial power from power source supplied from plug 26; column 14, line 54 - column 17, line 8; see Figure 17), the power supply having a DC voltage output (low voltage source supplying components would have a DC voltage output as required for the control circuit/CPU) of a predetermined value regardless of the AC voltage within the range of AC voltages (column 14, line 54 - column 17, line 8; see Figure 17); a heating element (heating element 5) directly coupled to the AC voltage source (AC) in parallel with the power supply (low voltage source 25) (see combination of Figures 8, 17, 20, 27); and a controller (heater control circuit 4/CPU) coupled to the DC voltage output to receive power from the power supply (low voltage source 25), the controller (heater control circuit 4/CPU) being configured to control the operation of the heating element (column 3, line 6 - column 23, line 5; see Figures 1-29); a switch (triac 30) that is closeable to apply a specific AC voltage to the heating element if the apparatus is operated in an area with the specific voltage and to apply a different AC voltage to the heating element if the heating apparatus is operated in an area with a different AC voltage (column 3, lines 47-51; column 4, lines 47-51; see Table 1); the controller (heater control circuit 4/CPU) comprising a processor (CPU) that controls the switch (triac 30). In addition, Hirabayashi et al. teach the low voltage source (25) being coupled to both the CPU and the motor drive circuit (34) (see combination of Figures 8, 17, 20, 27). Similarly, Hirabayashi et al. teach a motor (35) being power by the output of the DC voltage of the power supply. Hirabayashi et al. also teach a temperature sensor (7) that is coupled to the controller (heater control circuit 4/CPU) and that provides a signal to the controller (heater control circuit 4/CPU) which is indicative of a temperature. Hirabayashi et al. further teach the advantage of such a configuration provides a means for an apparatus to stably operate with plurality of rated voltage of power sources (column 2, lines 12-15), thereby increasing the versatility of the apparatus.

Similarly, a power supply having a DC voltage output of a predetermined value of about 24 volts DC regardless of whether the input is receiving the domestic AC voltage or the foreign AC voltage is known in the art. Potega, for example, teaches a power supply (2) connected to an input power source (1) that may be either domestic or foreign (pages 7-8, paragraph 99; page 27, paragraph 348) configured to provide -24 to +24

VDC (page 8, paragraph 101). Potega further teaches such a configuration provides a means to provide a particular voltage which is compatible with any variety of primary devices, thereby providing a power supply that detects power requirements of an electrical device and configures itself to provide the correct power to the device (Abstract; page 8, paragraph 101).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Ihlenfeld with a power supply having an input that couples to an AC voltage source, the power supply having a DC voltage output of a predetermined value regardless of the AC voltage within the range of AC voltages; a heating element directly coupled to the AC voltage source in parallel with the power supply; and a controller coupled to the DC voltage output to receive power from the power supply, the controller being configured to control the operation of the heating of Hirabayashi et al. in order to provide a means for an apparatus to stably operate with plurality of rated voltage of power sources (column 2, lines 12-15), thereby increasing the versatility of the apparatus. Furthermore, to provide DC output to the lamp instead of direct AC voltage would have been a mere engineering expediency as Hirabayashi et al. clearly teaches the use low voltage power source to power external components other than the heater.

Similarly, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the predetermined DC voltage output value of the silent low voltage source regardless of whether the input is receiving the domestic AC voltage or the foreign AC voltage of Ihlenfeld in view of Hirabayashi et al. with the predetermined value being about 24 volts DC regardless of whether the input is receiving the domestic AC voltage or the foreign AC voltage of Potega in order to provide a particular voltage which is compatible with any variety of primary devices, thereby providing a power supply that detects power requirements of an electrical device and configures itself to provide the correct power to the device. Furthermore, the examiner asserts that applying a known technique to a known device ready for improvement would yield predictable results. That is, it would have been recognized by one of ordinary skill in the art that applying the known technique taught by Potega to the beverage heating apparatus of Ihlenfeld in view of Hirabayashi et al. would have yielded predicable results and resulted in an improved system, namely, providing DC voltage output of a predetermined value being about 24 volts DC regardless of whether the input is receiving the domestic AC voltage or the foreign AC voltage in of Ihlenfeld in view of Hirabayashi et al. to provide a particular voltage which is compatible with any variety of primary devices, thereby providing a power supply that detects power requirements of an electrical device and configures itself to provide the correct power to the device.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner again mistakenly relies upon the combination of Ihlenfeld in view of Hirabayashi et al. As demonstrated by all of the foregoing, Ihlenfeld does not disclose all of the limitations of the claimed invention. Moreover, Ihlenfeld does not disclose a power supply having a DC voltage output of a predetermined value of about 24 volts DC regardless of whether the input is receiving the domestic AC voltage or the foreign AC voltage and this is a structural limitation. Claim 31 is directed to a beverage apparatus including a combination of elements including a controller, a heating element and a power supply having the output stated therein. These limitations, including the recitation of what the power supply is by stating what it does, may not be disregarded.

Moreover, Applicants respectfully submit that independent claim 31 recites "a domestic AC voltage source" and "a foreign AC voltage source," which is nowhere disclosed in Potega. For example, the Examiner relies of paragraph 0099 of Potega, which discloses:

> [0099] FIG. 1 is a block diagram illustrating the manner in which a basic configuration of a power supply 2 according to the present invention may be interposed between a power source 1 and a primary device 13 (e.g., a laptop computer). As shown in FIG. 1, power supply 2 draws power from power source 1 (e.g., 120 VAC@60 Hz, 115 VAC@400 Hz, 28 VDC, or any AC or DC) and converts it to the appropriate power level for primary device 13 (e.g., 20.5 VDC if supplied device 12 were a laptop computer). This proper voltage is supplied on powerline 3. Primary device 13 is shown to comprise supplied device 12 (e.g., a portable audio CD-player) and battery 5 that is voltage-compatible with supplied device 12. While some embodiments of this invention make use of data capabilities in either or both battery 5 and/or supplied device 12, such uni-directional or bi-directional data is not critical to the functionality of power supply 2. Supplied device 12 can be, but is not limited to, any electronic or electrical apparatus which (in the absence of power supply 2 and connector 8) relies, in part or in whole, on power supplied by battery 5. Supplied device 12 can have data and/or power signals available to or from it on line 3. Data signals and power signals may be transmitted on separate lines or together on shared conductors, or separate data links between power supply 2 and supplied device 12 can exist as wired or wireless connections. Power supply 2 is not dependent for its functionality on any data link between it and supplied device 12. For example, powerline modulation may be employed on line 3 where data is transmitted by modulating the amplitude or frequency of a power signal. Such powerline modulation has been

performed in home automation systems by such companies as X-10 (Closter, N.J.), Lon Works, Motorola (Schaumburg, Ill.) and Echelon (PaloAlto, Calif.).

While Potega discloses that "power supply 2 draws power from power source 1 (e.g., 120 VAC@60 Hz, 115 VAC@400 Hz, 28 VDC, or any AC or DC) and converts it to the appropriate power level for primary device 13 (e.g., 20.5 VDC if supplied device 12 were a laptop computer)," it merely discloses a converter.

The Examiner also relies on paragraph 0348 of Potega, which discloses:

[0348] The power supply module 64 is compatible with any readily available AC or DC primary power input. Power converter 1 is an AC/DC converter, and power converter 2 is a variable-input-voltage DC/DC converter. For example, the power supply module supports, but is not limited to, the commonly available "universal" 80-240 VAC (European specification), as well as 28 VDC (commonly used on commercial aircraft) and 12 VDC (automotive). For this degree of universality, two converters 1 and 2 are required. Power converter 1 preferably accepts a standard 80-240 VAC input and converts it to a 28 VDC output across conductors 5. Power converter 2 preferably accepts a range of DC input voltages from 5-30 VDC, but as noted above, two of the common DC input voltages referenced here are 28 VDC and 12 VDC. Converters 1 and 2 are represented in FIG. 10 within converter module 7 which, along with power supply 26, can be built into one power supply module. An individually detachable module containing power converters 1 and 2 makes power supply 26 more versatile. Any DC output from power source 1 is acceptable for the functionality of power supply 26, and any DC input to power source 2 is also acceptable. As another example, power converters 1 and 2, when equipped with the appropriate input-side connectors 65 and 66 (e.g., for a standard car cigarette lighter receptacle, or one or more of the two proprietary connectors used by the EmPower (Olin Aerospace, Redmond, Wash.) in-flight power delivery system for commercial aircraft), render power supply module 64 compatible with common automotive and aircraft power systems. The EmPower system makes 15 VDC available to the passenger, via several power receptacles embedded in the passenger seat, but the aircraft's power bus is 28 VDC (or, alternately, 115 VAC@400 Hz).

But, this embodiment requires two converters.

Finally, the Examiner relies on paragraph 0101 of Potega, which discloses:

[0101] To simplify the discussion of power supply 2, an input voltage to primary device 13 is assumed to be a specific voltage, here 12 VDC. Power supply 2 is a variable-voltage power supply appropriately

> configured to deliver a range of output voltages, such as from -24 to +24 VDC, so that there is a particular voltage which is compatible with any of a wide variety of primary devices such as primary device 13 (e.g., here identified as 12 VDC). Primary device 13 also has a rechargeable and removable battery in this example, so that battery 5 also outputs 12 VDC. Any number of output voltages are available from power supply 2, so that supplied device 12 can be, for example, a cellular phone, rated at 7.2 VDC, a flashlight with 3 rechargeable Ni-Cad "D"-size cells (3.75 VDC), a portable tape recorder with four non-rechargeable, removable primary AA cells (also 3.0 VDC), a notebook computer (many notebook computers are designed for input voltages ranging from 10-24 VDC), as just a few examples of the multiplicity of devices and their varying voltage requirements which power supply 2 can properly power. These various power signal output reconfigurations of power supply 2 are done automatically, without any manipulation of switches, manually adjustable potentiometers, or user intervention whatsoever.

Here, the power supply is "... appropriately configured to deliver a range of output voltages, such as from -24 to +24 VDC, so that there is a particular voltage which is compatible with any of a wide variety of primary devices ...." In contradistinction, the invention recited in claim 31 (from which claims 26 and 27 depend) includes a "power supply having a DC voltage output of substantially a predetermined value of about 24 volts DC regardless of whether the input is receiving the domestic AC voltage or the foreign AC voltage." Thus, Potega actually teaches away from the claimed invention by having a power supply configure to deliver a range of output voltages — not substantially a predetermined vale as recited in claim 31.

Since claims 26 and 27 depend from independent claim 31, and since neither Hirabayashi nor Potega cure this deficiency, the rejection of claims 26, 27, and 31 under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. and Potega should be withdrawn.

O. Claim 28 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. and Potega as applied to claims 26, 27, and 31, and further in view of Herrick et al. In paragraph 23 of the Office Action, the Examiner contends that:

> Ihlenfeld in view of Hirabayashi et al. and Potega discloses all of the limitations of the claimed invention, as previously set forth, except for a solenoid to which the DC voltage output of the power supply is coupled, wherein the solenoid is operable to dispense a beverage; valves

(dispensing and refill valves) to which the DC voltage output of the power supply is coupled; and a sensor being a capacitance sensor.

However, utilizing a solenoid and valve to which DC voltage is coupled, is known in the art. Herrick et al., for example, teach a liquid pump (15) being a pump or solenoid and being electrically connected to the power supply and permitting flow of product (page 21, lines 19-20; see Figures 1, 17, 22) and inlet/refill and outlet/dispensing sealants (159, 161) functioning as valves having an electrical and fluid seal controllable via electrical connections 163 and 167 (page 23, lines 1-22). Such a DC powered mechanism provides the advantage of providing a non-gravitational control of the fluid flow through a fluid heating system, thereby inherently providing a more accurate means to control a valve.

Herrick et al. further teach that it is known to utilize temperature sensors and conductance sensors together in beverage dispensing apparatus (temperature sensor 19 and a conductance sensor; page 8, line 24 - page 9, line 19; page 18, line 24 - page19, line 16; see Figures 1, 17,22) to provide more information about the variables of the fluid to be heated (i.e. flow rate, temperature, conductance), thereby improving the closed control loop regulation of a beverage heating apparatus (page 19, lines 4-21).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the gravitation water inlet/thermostatic control of Ihlenfeld in view of Hirabayashi et al. and Potega with a solenoid valve and DC control thereof of Herrick et al. in order to provide a non-gravitational control of the fluid flow through a fluid heating system, thereby inherently providing a more accurate means to measure and control fluid flow. It would have further been obvious to one of ordinary skill in the art at the time of the invention was to modify Ihlenfeld in view of Hirabayashi et al. and Potega with the addition of a conductance sensor in conjunction with the existing temperature sensor of Herrick met al. in order to provide more information about the variables of the fluid to be heated, thereby improving the closed control loop regulation of a beverage heating apparatus.

Applicants respectfully submit that the Examiner's rationale is misplaced for the following reasons.

The Examiner incredibly contends that "Ihlenfeld discloses all of the limitations of the claimed invention, as previously set forth," and then lists nearly a dozen exceptions. What is clear is that Ihlenfeld does not disclose all of the limitations of the claimed invention. Moreover, Ihlenfeld does not disclose:

> a switch that is closeable to apply a specific AC voltage to the heating element if the beverage apparatus is operated in an area with the specific AC voltage and to apply a different AC voltage to the heating element if the beverage heating apparatus is operated in an area with the different AC voltage

as recited in claim 30, from which claims 11, 13, and 20-23 ultimately depend. Hirabayashi does not cure this deficiency.

For example, the only reference in Ihlenfeld to an AC voltage source is at column 5, lines 53-56, which states:

> The invention is provided with an electrical male plug 92 having a pair of prongs 94 and 96 adapted to be electrically coupled to a conventional 120 volt outlet. Coupled to the prong 94 is a conductor 98 and coupled to the prong 96 is a conductor 100.

Ihlenfeld is completely silent as to either "a domestic AC voltage source" or "a foreign AC voltage source."

Hirabayashi discloses an image forming apparatus which includes a device operable with a first rated voltage and a second rated voltage which is different from the first rated voltage. See abstract. However, Hirabayashi is completely silent in regards to "a power supply having a DC voltage output of substantially a predetermined value regardless of whether the input is from the domestic AC voltage source or the foreign AC voltage source" as recited in claim 31, from which claim 28 depends. [emphasis added]

Hirabayashi, in fact, makes no mention of DC. Insofar as is pertinent herein, the Examiner contends that Hirabayashi teaches:

> a power supply (low voltage source 25) having an input that couples to an AC voltage source (commercial power from power source supplied from plug 26; column 14, line 54 - column 17, line 8; see Figure 17), the power supply having a DC voltage output (low voltage source supplying components would have a DC voltage output as required for the control circuit/CPU) of substantially a predetermined value regardless of the AC voltage within the range of AC voltages (column 14, line 54 - column 17, line 8; see Figure 17)

However, Hirabayashi discloses at column 15, lines 6-16 that:

> The CPU 21 which is the central part of the control means is connected to a low voltage source 25 which receives power from commercial power

> source supplied from plug 26 and reduces the voltage, and is connected to a voltage discrimination circuit 24 for discriminating the voltage of the commercial power on the basis of the voltage from the low voltage source 25. The low voltage source 25 and the voltage discrimination circuit 25 of this embodiment can be switched by manual switch between 100 V/115 V side or 200 V/220 V/240 V side.

There is no teaching or suggestion within Hirabayashi that low voltage source 25 is a DC power source. In fact, at column 15, lines 35-48, Hirabayashi notes:

> The sequence control by the CPU 21 and the ROMs 22 and 23 in this embodiment will be described. When the commercial power supply provides 100 V, the low voltage source 25 and the voltage discrimination circuit 24 is switched to 100 V/115 V side, and the voltage of 100 V is supplied from an outlet 26. Then, a predetermined low voltage is supplied to the voltage discrimination circuit 24 through the CPU 21, and the circuit 24 discriminates that the supplied voltage is 100 V/115 V, and a signal indicative of this is transmitted to the CPU. The CPU, receiving this signal, selects a sequence from the ROM 22 for the sequential control for 100 V/115 V. Then, the control of the heat generation for the heater 5 of the fixing apparatus is started. [emphasis added]

Since claim 28 depends from independent claim 31, and since Hirabayashi, Potega (for the same reasons noted above), and Herrick (for the same reasons noted above) cure this deficiency, the rejection of claim 28 under 35 U.S.C. § 103(a) as being unpatentable over Ihlenfeld in view of Hirabayashi et al. and Potega as applied to claims 26, 27, and 31, and further in view of Herrick et al should be withdrawn.

III. Conclusion

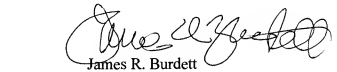
In view of all of the above, it is urged that the application with claims 2-24 and 26-31 is in condition for allowance and such action is, respectfully, requested.

If there is any issue remaining to be resolved, the examiner is invited to telephone the undersigned so that resolution can be promptly effected.

It is requested that, if necessary to effect a timely response, this paper be considered as a Petition for an Extension of Time sufficient to effect a timely response with the fee for such extensions and shortages in other fees, being charged, or any overpayment in fees being credited, to the Account of Barnes & Thornburg, Deposit Account No. 10-0435 (27726-99611).

Respectfully submitted,

BARNES & THORNBURG LLP



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